

ORIGINAL

BEFORE THE TENNESSEE REGULATORY AUTHORITY

NOV 13 1999 10 10 03

IN RE: APPLICATION OF TERRABROOK )  
LADD UTILITIES LLC, )  
)  
)

EXHIBIT 1  
No. 99-00509

**TESTIMONY OF JAMES R. JOHNSON  
CITY ADMINISTRATOR  
OF THE CITY OF FRANKLIN, TENNESSEE**

1. I have served as the City Administrator and Recorder for the City of Franklin, Tennessee, since September of 1993. Under the Franklin City Charter, the City Administrator is appointed by the Board of Mayor and Aldermen and charged with the running the day-to-day business of the executive branch of the City. Prior to my appointment in Franklin, I served as the City Manager of Ponca City, Oklahoma from 1988 until 1993, City Administrator of Collierville, Tennessee from 1981 until 1988, City Manager of Mount Pleasant, Tennessee from 1979 until 1982, and Assistant City Manager of Largo, Florida from 1976 until 1979. I am a graduate of Southern Illinois University with a degree in public administration and a certified municipal clerk and recorder of the State of Tennessee. I am active in and have been an officer of the Tennessee City Managers Association and a member of the International City Manager's Association (ICMA).

2. All of the administrative posts have included some executive oversight of the city's waste-water collection and treatment system. I am knowledgeable about all aspects of the City's wastewater system, including the physical assets of the system, rates and fees, financial status, policies for extension of service, drainage basins in the City and in Williamson County, the geographical areas that are at issue in this application, and all plans for improvements and expansion of the City's system.

3. The City of Franklin operates a 12 million gallon per day (MGD), NDES permitted, wastewater treatment plant. A 6.5 million gallon per day addition to the plant was completed in the Summer of 1999 and placed into service in November of 1999. At the present time, the average daily flows are 5.4 million gallons per day. The City employs 17 people in its sewer plant operations. To comply with environmental laws, the City has also developed an activated sludge process with tertiary treatment that produces Class A sludge, in compliance EPA rules. The City also supplies up to 2 million gallons per day of treated effluent to the Legends Golf Club in Franklin for use in irrigation.

4. As of the beginning of the present fiscal year (July 1, 1999) the City owned 978,349 feet (185.29 miles) of sewer lines for provision of service to 11,106 customers, 10,012 living within the City limits and 1,094 living outside of the City limits. When fully operational, the 12 MGD plant will serve a population of 70,000, with a planning period of 1995-2015. As of the end of November 1999, the City had added in fiscal 1999-2000,

39,934 feet (7.56 miles) of additional sewer line, with 183 manholes, at a total value of \$1,951,746.00. The annual operating revenue for the Franklin sewer department is approximately \$5.1 million dollars.

5. It is the current policy of the City, by ordinance, to require that the developers of residential and commercial subdivisions pay for the extension of sewer service to their property, if not presently adjacent to an existing line. The City allows the developer to then recover a portion of the cost of making such improvements, by repaying to the developer some or all of the sewer access fees generated along the line or main in question. (See Section 18-208, Franklin Municipal Code, relevant provisions of which are attached as **Collective Exhibit A**).

6. The City's current sewer rates are based upon 85% of the water rates, according to the schedule below:

**18.129. Schedule of Rates:** The following rates shall be, and are hereby, established for water distributed within the corporate limits of the City of Franklin, Tennessee, by the City of Franklin:

First	1500 Gallons	\$3.92
Next	3500 Gallons	\$2.25 per 1000
Next	5000 Gallons	\$2.32 per 1000
Next	5000 Gallons	\$2.44 per 1000
Next	5000 Gallons	\$2.56 per 1000
Next	30,000 Gallons	\$1.83 per 1000
Next	50,000 Gallons	\$1.46 per 1000
Next	400,000 Gallons	\$1.28 per 1000
	All Over 500,000 Gallons	\$1.15 per 1000

7. The City's standard connection or tap fee charge is \$900 per single family residence. (See Section 18-206 of the Code). In addition, the City imposes an "access fee" of \$600 per SFU for each new customer, for the purpose of funding improvements to the Franklin sewer system. (See Section 18-207 (5) of the Code).

8. The City has studied several alternatives for providing sewer service to the area sought to be served by the applicant. On May 13, 1997, the City authorized the engineering firm of Smith, Seckman & Reid (SSR) to conduct a study "to evaluate the drainage basin in the area of Fivemile Creek to the south of the city . . . (including) a plan for providing sewer service to this area, known as the I-65 South Corridor." This drainage basin includes the property sought to be served by the applicant. (A copy of this report is attached as **Exhibit B**). The study assumed potential, new discharge points into the Harpeth River within this "I-65 South Corridor." (See **Exhibit B**, page 2.) The study takes into account for a projected period of fifteen (15) years, present and future land uses, population trends, potential sewage flows, and alternative methods of treatment. (Id.) The SSR study was sent to the Tennessee Department of Environment and Conservation (TDEC) along with proposed discharge points for NPDES permit planning limits, soon

after its completion in January of 1998.

9. By letter of December 14, 1998, the TDEC advised the City that no new discharge points would be permitted into the Harpeth and that planning limits for the proposed discharge points would not be approved at the present time. (See Letter of Paul Davis, attached as **Exhibit C**).

10. Despite this response from TDEC, the City has continued to try to develop alternatives to providing sewer to the "I-65 South Corridor" area. On January 17, 2000, as part of a general report to the Public Utilities Committee of the Franklin Board entitled "2000 Sewer Project Priorities", the Superintendent of Water and Wastewater, Eddy Woodard, made specific recommendations concerning the construction of a gravity line from the "I-65 South corridor area" ("Harpeth River Interceptor") to the City's main treatment plant. (See attached **Exhibit D**, page 3). The estimated cost of extending a line (16,000 feet) into this area would be \$3,375,000.

11. Following this meeting, at the City's request, SSR has continued to study alternatives for sewerage of the I-65 South Corridor. (See "City of Franklin, I-65 South Corridor Sewer System Alternatives, January 2000," attached hereto as **Exhibit E**, and accompanying survey maps marked as **Exhibit 1 to Ex. E and Exhibit 2 to Ex. E**). This latest study to provide sewer to the entire drainage basin considers two basic options: (a) construction of a new treatment plant at the confluence of the Harpeth River and Five-Mile Creek, along with sewage collection lines, but with zero discharge into the Harpeth and disposal of effluent over land (i.e. like the applicant's proposal) and (b) construction of lines and a new pump station or stations to convey the sewage to the existing Franklin sewer treatment plant.

12. It is anticipated that the first option would take from three (3) to five (5) years to implement for planning, design, land acquisition and construction, and the second option from two (2) to four (4) years. Both would depend upon demand for service in the study area and financing. (See **Exhibit E**, page 3). A "sub-option" for providing service to the Goose Creek interchange area, would involve construction of a temporary pump station near Peytonsville Road and Five Mile Creek and pumping to existing City facilities near the Sullivan Farms Subdivision. (See **Exhibit E**, page 3, final paragraph). This project could be complete within nine (9) to twelve (12) months. (Ibid.) Yet another alternative, which would allow provision of service to the entire Five Mile Creek drainage basin, which could connected to the Ladd Property by a gravity line, would involve construction of a temporary pump station at the Five Mile Creek/Harpeth River confluence, which would pump effluent to the facilities at Sullivan Farms. (Ibid.) It is anticipated that this alternative would take from twelve (12) to eighteen (18) months to implement.

13. All of these alternatives are for sewerage of an area much larger than, but slightly to the west of the Terrabrook/Ladd property and are in anticipation of projected development in the entire "I-65 South Corridor." The Terrabrook/Ladd Development would have to be connected to the proposed system additions by extension of service lines and construction of a pump station.

14. The applicant has never formally requested annexation into the City or provision of sewer service by the City, although both proposals have been informally discussed with city department heads.

15. Beginning in January of 1999, the City has been in the process of developing its urban growth boundaries (UGB) and participating in the formulation of the County-wide growth management plan, all as mandated by Public Chapter 1101, T.C.A. Section 6-58-101 et seq.<sup>1</sup> One of the factors used by the City in developing its proposed UGBs was the existence of natural drainage basins for sewer service. This is due to the statutory mandate of identifying areas "in which the municipality is better able and prepared than other municipalities to efficiently and effectively provide urban services. . . ." T.C.A. Section 6-58-106 (a)(1)(D). The City's proposed UGB has included the Terrabrook/Ladd property because the City believes that it will eventually be best able to provide services to this area, based upon, among other things, the Smith, Seckman Reid reports and studies produced since 1997.

16. The City maintains that it would be better able to provide service to the area in question within a reasonable time with additions and extensions to its present system, at lower rates and with lower fees than are proposed by the applicant. The City must necessarily plan for serving a larger area than just the applicant's development and has included this area within its UGB as part of the County-wide growth management plan.

  
JAMES R. JOHNSON

STATE OF TENNESSEE       )  
  )ss:  
COUNTY OF WILLIAMSON    )

**SUBSCRIBED AND SWORN** to before me by **James R. Johnson**, on this the 9<sup>th</sup> day of **February, 2000**.

  
Notary Public

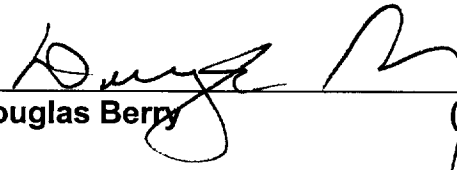
My Commission expires:

June 30, 2003

<sup>1</sup> The County-wide growth management plan has not yet been approved by all of the participating municipalities and Williamson County.

**CERTIFICATE OF SERVICE**

I do hereby certify that a true and correct copy of the foregoing has been hand-delivered to: **Donald L. Scholes**, Branstetter, Kilgore, Stranch and Jennings, 227 Second Avenue North, 4<sup>th</sup> Floor, Nashville, Tennessee, 37201-1631; and **Consumer Advocate, L. Vincent Williams**, Office of the Attorney General, 450 James Robertson Parkway, Nashville, Tennessee 37219; and mailed to **Milcrofton Utility District**, 6333 Arno Road, Franklin, Tennessee 37064, on this 10<sup>th</sup> day of **February, 2000**.

  
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Douglas Berry (6927)

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LADD UTILITIES LLC,

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ENCLOSURE

NO. 99-00509

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EXHIBITS TO  
TESTIMONY OF JAMES R. JOHNSON  
CITY ADMINISTRATOR  
OF THE CITY OF FRANKLIN, TENNESSEE

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POSTED  
2-19-03

used but is received from a service line under any of the following circumstances:

(1) After receipt of at least ten (10) days' written notice to cut off water service, the city has failed to cut off such service.

(2) The city has attempted to cut off a service but such service has not been completely cut off.

(3) The city has completely cut off a service, but subsequently, the cutoff develops a leak or is turned on again so that water enters the customer's pipes from the city's main.

Except to the extent stated above, the city shall not be liable for any loss or damage resulting from cutoff failures. If a customer wishes to avoid possible damage for cutoff failures, the customer shall rely exclusively on privately owned cutoffs and not on the city's cutoff. Also, the customer (and not the city) shall be responsible for seeing that his plumbing is properly drained and is kept properly drained, after his water service has been cut off. (1976 Code, § 13-126)

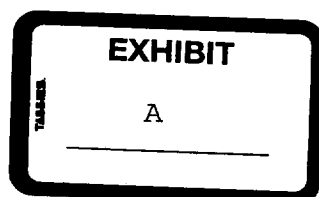
**18-127. Restricted use of water.** In times of emergencies or in times of water shortage, the city reserves the right to restrict the purposes for which water may be used by a customer and the amount of water which a customer may use. (1976 Code, § 13-127)

**18-128. Interruption of service.** The city will endeavor to furnish continuous water service, but does not guarantee to the customer any fixed pressure or continuous service. The city shall not be liable for any damages for any interruption of service whatsoever.

In connection with the operation, maintenance, repair, and extension of the city's water system, the water supply may be shut off without notice when necessary or desirable, and each customer must be prepared for such emergencies. The city shall not be liable for any damages from such interruption of service or for damages from the resumption of service without notice after any such interruption. (1976 Code, § 13-128)

**18-129. Schedule of rates.** The following rates shall be, and are hereby, established for water distributed within the corporate limits of the City of Franklin, Tennessee, by the City of Franklin:

First 1500 Gallons	\$3.92
Next 3500 Gallons	\$2.25 per 1000
Next 5000 Gallons	\$2.32 per 1000
Next 5000 Gallons	\$2.44 per 1000
Next 5000 Gallons	\$2.56 per 1000
Next 30,000 Gallons	\$1.83 per 1000
Next 50,000 Gallons	\$1.46 per 1000



Next 400,000 Gallons	\$1.28 per 1000
All Over 500,000 Gallons	\$1.15 per 1000

For all water furnished by the City of Franklin to consumers outside the corporate limits of the City of Franklin, the rate charged shall be one hundred seventy percent (170%) of the rate charged to consumers who are furnished water within the corporate limits of the City of Franklin, Tennessee. A sewer service charge of eighty-five percent (85%) of the water rate shall be added to and combined with the water charge. To the sewer service charge shall be added the state sewer fee, which is five percent (5%) of the sewer service charge. (1976 Code, § 13-112)

**18-130. Inapplicability.** Nothing contained in this chapter shall be construed as in any way or in any matter affecting the provisions of a resolution adopted and approved by the board of mayor and aldermen of the City of Franklin, Tennessee, on May 9, 1958, whereby \$335,000 water works system extension revenue bonds, series of 1958 of the City of Franklin, Tennessee, were issued to pay for the cost of improving and extending the water works system of the City of Franklin, Tennessee, along U.S. 431 northward from the city for about 35,000 feet to Moran Road, thence westward along said road about 3,300 feet, or any ordinance passed in connection therewith. (1976 Code, § 13-129)

**18-131. Construction of water lines.** All persons who undertake the construction of water lines located in, or affecting water service provided by, the City of Franklin shall comply with the requirements and regulations set forth in the "Standard Water and Sewer Specifications for Subdivision and General System Additions" manual prepared by Water Management Services of Nashville, Tennessee, and dated November, 1987, along with any amendments, additions, or alteration that may thereafter be adopted by the board of mayor and aldermen by resolution, copies of which may be purchased in the office of the city recorder.

Upon completion of the construction of any such water line and upon approval by the city, such water lines and mains shall become the property of the city. The persons paying the cost of constructing such lines and mains shall execute all written instruments required by the city necessary to provide evidence of the city's title to such lines and mains. In consideration of such lines and mains being transferred to the city, the city shall incorporate said mains as an integral part of the city's water system and shall furnish water therefrom in accordance with this chapter.

When for cause shown, the board of mayor and aldermen determines that it is in the best interest of the water system and the general public to extend water service without requiring strict compliance with this section, and/or the requirements of the Standard Water and Sewer Specifications, such extension

(4) The owner of all houses, building or properties used for human occupancy, employment, recreation, or other purposes, situated within the city and abutting on any street, alley or right-of-way in which there is now located or may in the future be located a public sanitary sewer of the city, is hereby required at his expense to install and properly maintain suitable toilet facilities therein, and to connect such facilities directly with the proper public sewer in accordance with the provisions of this chapter, within sixty (60) days after date of official notice to do so, provided that said public sewer is within two hundred (200) feet of the property line or easement on which the principal structure is located. (1976 Code, § 13-204, as replaced by Ord. #97-05, § I, Feb. 1997)

**18-205. Private sewage disposal.** (1) Where a public sanitary sewer is not available under the provisions of § 18-204(2), the building sewer shall be connected to a private sewage disposal system complying with the provisions of this section.

(2) The type, capacities, location and layout of a private sewage disposal system shall comply with all regulations of the Department of Environment and Conservation of the State of Tennessee. No septic tank or cesspool shall be permitted to discharge to any public sewer or natural outlet.

(3) A permit for a private sewage disposal system shall be obtained from the Williamson County Health Department. The application for such permit shall be made on a form furnished by the County Health Department. The permit for said private sewage disposal shall not become effective until the installation of the system is completed to the satisfaction of the county health inspector.

(4) At such time as a public sewer becomes available to a property served by a private sewage disposal system, as provided in § 18-204, a direct connection shall be made to the public sewer in compliance with this chapter, and any septic tanks, cesspools, and similar private sewage disposal facilities shall be abandoned and treated in such a manner as to cease to be health hazard or filled with suitable material.

(5) The owner shall operate and maintain the private sewage disposal facilities in a sanitary manner at all times, at no expense to the city.

(6) No statement contained in this section shall be construed to interfere with any additional requirements that may be imposed by the state and/or county health authorities. (1976 Code, § 13-205, as replaced by Ord. #97-05, § I, Feb. 1997)

**18-206. Building sewer or service line connections.** No person not authorized by the director shall uncover, make any connections with or opening into, use, alter, or disturb any public sewer or appurtenance, thereof, without first obtaining a written permit from the director. Also all connections to the system must be made under the supervision of the director.

(1) Permits. (a) All applications for permits for connections to the public sanitary sewer shall be made on blank forms approved and furnished by the city recorder, for each building or connection desired.

(b) There shall be two (2) classes of building sewer or service line permits:

(i) For residential and commercial service, and

(ii) For service to establishments producing industrial wastes. In either case, the owner or his agent shall make application on a special form furnished by the city. The permit application shall be supplemented by any plans, specifications, or other information considered pertinent in the judgment of the director.

(2) Assessment and collection of tap fees. The connection charge for all customers is assessed and shall be paid prior to the issuance of a building permit. The installation charge is assessed and shall be paid whenever the city provides labor, equipment or materials to install the portion of the service line between the sewer main and the customer's part of the service line.

(a) The connection charge shall be based on a Single Family Unit (SFU) or its equivalent. The equivalent number of Single Family Units (SFU's) for a particular applicant shall be determined by using an estimate of the average daily flow from any facility applying for sewage service and dividing that flow by 350. The average daily demand will be taken from Table 5.1 of the Design Criteria manual published by the Tennessee Department of Health, August, 1972, and subsequent revisions thereof, which manual and subsequent revisions are incorporated by reference as if set forth herein verbatim. For facilities not covered by the publication, the director of the water and sewer department of the City of Franklin shall estimate the average daily flow applying to the facility in question, and shall base the estimate on other nationally recognized publications or such data as may be available to the director.

The connection charge shall be \$900 per SFU, with a minimum charge of \$900 for connections inside the corporate limits of the city. Customers outside the corporate limits shall be charged \$100 more per SFU than similar customers inside the corporate limits. Where applicable, the following charges shall be collected by the recorder at the time the permit is issued:

STANDARD CONNECTION CHARGE SCHEDULE

<u>Customer Type</u>	<u>Equivalent S.F.U.</u>	<u>Basic Charge*</u>	
		<u>Customer Inside Corporate Limits</u>	<u>Customer Outside Corporate Limits</u>
1) Single Family Resident	1.0	\$ 900.00	\$1,000.00
2) Duplex	1.5	\$1,350.00	\$1,450.00
3) Apartment (per unit)	0.8	\$ 720.00	**
4) Mobile Home	0.6	\$ 540.00	**
5) Restaurant (per seat)	0.1	\$ 90.00	**
6) Schools (per 100 students)	7.0	\$6,300.00	**
7) Office Building (per 100 square feet)	0.04	\$ 36.00	**

\*A minimum basic charge of \$900.00 will be assessed for any connection inside the corporate limits and \$1,000.00 outside the corporate limits.

\*\*Customer outside corporate limits will be charged \$100.00 more than a similar customer inside the corporate limits.

(b) The installation charge consists of the cost of labor, materials and equipment involved in installing the service line and required appurtenances, and will be paid in accordance with the following schedule:

INSTALLATION CHARGE SCHEDULE (ALL CUSTOMERS)

<u>Customer Type (All Customers)</u>	<u>Complete Installation</u>	<u>Location of Existing Tap Only</u>
4" Sewer Service	\$200.00	\$ 50.00
6" Sewer Service	250.00	50.00

(2) For the purposes of this section, the point of connection to the system shall be that point at which any new line or service tap is connected to an existing line in the Franklin Sewer System. Such point may be remote from the site of the development or customer requiring service.

(3) The access fee shall be based on the anticipated wastewater discharge for the development. Such anticipated discharge shall be determined by the director, and shall be based on the following:

(a) Information furnished to the director by the person or entity desiring to connect to the sewer lines or facilities;

(b) Information contained in recognized state or national publications;

(c) Records or similar installations; or

(d) Information supplied from other reliable sources approved by the director.

(4) The unit of measure shall be the Single Family Unit (SFU) which shall be equivalent to a daily wastewater discharge of 350 gallons.

(5) The access fee shall be no less than \$600 per SFU. However, an access fee greater than \$600 per SFU for access to any specific section of a sewer main may be established by resolution of the board of mayor and aldermen upon recommendation of the public utilities committee.

(6) Funds paid to the city as access fees shall be deposited in a special account for the purpose of providing funds for additions and improvements to the Franklin Sewer System. Such funds may be withdrawn from the account by resolution of the board of mayor and aldermen.

(7) The access fee for residential customers is assessed and shall be paid prior to the issuance of a construction permit for the installation of sewer facilities to serve developments or individual customers, prior to the issuance of a building permit, or prior to the issuance of a permit to tap a sewer main, whichever occurs first. The access fee for all other customers is assessed and shall be paid prior to the issuance of a building permit. (1976 Code, § 13-207, as replaced by Ord. #97-05, § I, Feb. 1997)

**18-208. Main extensions or facilities funded in whole or in part by developers.** (1) In the event that a person or entity has paid part or all of the costs of constructing sewer lines or facilities, which lines or facilities become part of the city sewer system and are available for the general use and benefit of the customers of the city sewer system, that person or entity may be allowed to recover its portion of the cost of construction of such lines or facilities. Such recovery shall be permitted only by the board of mayor and aldermen upon recommendation by the public utilities committee. Recovery shall be paid from revenues generated by sewer line access fees. Recovery will not be allowed on sewer lines or facilities constructed within developments or otherwise constructed for the sole benefit of the person or entity constructing a residential, commercial or industrial development. For the purposes of this

amount of its contribution shall be added to the developers recoverable amount to arrive at a total effective project cost. In calculating the amount to be paid the developer from access fees collected in the area designated in the recovery agreement, the city recorder shall pay to the developer an amount equal to the developer's recoverable amount divided by the total effective project cost times the total access fees collected from the designated area. (1976 Code, § 13-208, as amended by Ord. #1296, Nov. 1994, as replaced by Ord. #97-05, § I, Feb. 1997)

**18-209. Construction of sewer lines.** (1) All persons who undertake the construction of sewer lines located in or affecting sewer service provided by the City of Franklin shall comply with the requirements and regulations set forth in the "Standard Water and Sewer Specifications for Subdivisions and General Systems Additions" manual prepared by Water Management Services and dated November, 1987, along with any amendments, additions, or alterations that may hereafter be adopted by the board of mayor and aldermen by resolution, or the latest edition thereof or amendment thereto, copies of which may be purchased in the office of the city recorder.

(2) Upon completion of the construction of any such sewer line and upon approval acceptance by the city, such sewer lines and mains shall become the property of the city. The persons paying the cost of constructing such lines and the mains shall execute all written instruments required by the city necessary to provide evidence of the city's ownership of such lines and mains. In consideration of such lines and mains being transferred to the city, the city shall incorporate said mains as an integral part of the city's sewer system and shall furnish sewer service therefrom in accordance with this chapter.

(3) When for cause shown, the board of mayor and aldermen determines that it is to the best interest of the sewer system and the general public to extend sewer service without requiring strict compliance with this section, such extension may be constructed upon such terms and conditions as shall be approved by the board.

(4) The authority to extend sewer service is permissive only and nothing contained herein shall be construed as requiring the city to provide sewer service to any person or persons. (1976 Code, § 13-209, as replaced by Ord. #97-05, § I, Feb. 1997)

**18-210. Sewer service charges.** Sewer service charges shall be collected from the person billed for water service to any premises with an accessible sanitary sewer. The sewer service charge shall be ninety percent (90%) of the water service charge and shall be added to and combined with the water service charge. Both charges shall be collected as a unit. No municipal employee shall accept payment of water service charges from any customer without receiving at the same time payment for all sewer service charges owed by such customer. Water service may be discontinued for nonpayment of the

**SEWER SYSTEM STUDY:**  
**I-65 SOUTH CORRIDOR**  
**DRAINAGE BASIN**



Smith Seckman Reid, Inc.

C O N S U L T I N G  
E N G I N E E R S

**EXHIBIT**

**B**

**SEWER SYSTEM STUDY:**  
**I-65 SOUTH CORRIDOR**  
**DRAINAGE BASIN**

**CITY OF FRANKLIN, TENNESSEE**

**JANUARY, 1998**

**SSR PROJECT NUMBER**  
**97-41-008.0**

## **PURPOSE**

This study was undertaken at the request of the City of Franklin in order to evaluate the drainage basin in the area of Fivemile creek to the south of the city and will include a plan for providing sewer service to this area, known as the I-65 South Corridor. The study area encompasses traditionally rural farmland and single family residential development, extends east and west of Interstate 65 to the limits of the natural drainage basin for Fivemile Creek, and includes areas south of the Harpeth River and north of the proposed route of I-840. The study area also extends to some 3,400 acres outside of the Fivemile Creek basin to the limits of natural drainage that could easily be routed to potential discharge sites on the Harpeth River.

This report will evaluate the drainage sub-basins based on current land use as well as anticipated future zoning and land use types. It will then project future sewage flows from the area and recommend alternatives for providing sewer service to the study area. These recommendations will include conceptual designs for an interceptor sewer line and a sewage treatment plant which would be required to accommodate ultimate expected flows from a fully developed drainage basin.

The study period will be defined as fifteen (15) years, during which time, land development and sewer flows in the basin will maximize as outlined by the parameters of this study.

### **DESCRIPTION OF I-65 SOUTH CORRIDOR**

The I-65 South Corridor encompasses the Fivemile Creek drainage basin, an area of approximately 6,270 acres to the south of the City of Franklin, as well as an additional 5,097 acres to the south and west of the Fivemile Creek basin. This additional area includes three interstate interchanges that are projected to be constructed on major north-south corridors that intersect I-840. These proposed interchanges are located at the intersections of I-65, Lewisburg pike (U.S. 431), and Columbia Pike (U.S. 31).

The borders of the study area are, roughly, the Harpeth River to the North, Interstate 840 to the south, Columbia Pike to the west, and Peytonsville Road to the east. The area is characterized by low and medium density residential, agricultural, and a small area of commercial development which consists primarily of the area immediately surrounding the Goose Creek Exit off Interstate 65. The area is primarily zoned as Suburban Estate, Suburban, and Rural. Exhibit 1 graphically describes these boundaries.

Estimates for population for year 1988 in the study area were based on data included in the City of Franklin Long Range Plan. Land parcels within the study area designated as residential on the December 1987 Land Use Map were used to calculate an equivalent population for the area by utilizing the average persons-per-dwelling unit figure of 2.92 for single family units as taken from the 1995 Franklin Special Census. Present population estimates were then projected by applying data from Table 4 - "Population Estimates and Projections" from the Long Range Plan. Future population for the study area was estimated in a similar manner using land use data from the Future Land Use Map.

The study area is broken down into 6 sub-drainage basins as shown in Exhibit 1. The study assumes areas 1 through 5 to be in the city limits of Franklin for planning purposes. Area 6 is assumed to remain outside the Franklin City limits, but it is assumed that similar development will occur in those areas. Each sub-area was evaluated in terms of land use, current zoning and probable maximum density zoning. A description of each sub-basin and parameters for each sub-area are included in Tables 1 and 2. Sub-areas were assigned incremental sewage flowrates based on each land use, and these are described in the "Projected Flows" section of this report.

### **PRESENT SEWER SYSTEM WITHIN THE I-65 SOUTH CORRIDOR**

There is presently no sewage collection system nor sewage treatment facility to serve the study area. This basin presently lies outside the service area boundaries for the Franklin water and wastewater systems. However, it should be noted that development continues at an increasing rate within this relatively undeveloped basin. As the demand for residential housing units increases in Franklin and Williamson county, infrastructure becomes the deciding factor in many cases when choosing locations for new development.

### **PROJECTED FLOWS**

Exhibit 2 is a flow schematic which shows average and peak flows from all sub-areas and the resulting flows in the proposed interceptors. Flows are calculated using most probable as well as maximum zoning densities.

Because present development within the basin is predominately Suburban Estate and Rural, the most probable densities used for these areas are between 1.5 and 1.0 units per acre for the developed tracts. The maximum density for

residential development is 2.5 units per acre. The actual area of development used for each sub-area is taken from the Franklin Land Use Maps.

Each sub-area within the basin was evaluated based on land use. Based on the guidance of the State of Tennessee sewage works design manual, incremental flows were set for alternate land uses. They are listed in the following table.

Land Use	Flow
Single Family Residence	350 GPD
Condominium/ Apartment	250 GPD
Retail	0.15 GPD/SF
Office	0.10 GPD/SF

A value of 15% of the total sub-area was designated for public use and roads based on actual survey data from the Franklin Planning Department. The areas with slopes of over 25% and hilltops were deleted from available land use as called for in the Franklin Long Range Plan.

Tables 1 and 2 show that average projected flows from this basin range from 3.20 MGD to 6.66 MGD. This is equivalent to a range of 2,222 GPM to 4,625 GPM, average flow. Peak flows for the basin range from 10.38 MGD to 21.64

MGD. The range of flows were defined by the zoning of tracts as shown on the Long Range Land Use Maps for the area. For calculating peak flows, the following peaking factors were taken from ASCE "Sewer Design & Construction Manuals and Reports on Engineering Practice."

Tributary Population	Factor
0 - 500	5
500 - 1,000	4
1,000 +	3.25

### **SUMMARY**

When the I-65 South Corridor becomes developed as described in the previous sections, sewage flow from this basin is expected to average from 3.2 to 6.7 mgd with peaks of 10.4 to 21.6 mgd within this 15 year study period.

This report is being sent to TDEC along with proposed discharge points for NPDES permit planning limits. The reply from TDEC will determine how this study is to proceed.

**TABLE 3**  
**PROPOSED DISCHARGE POINTS**

Site #	Discharge Stream	River Mile	Elevation (ft)	Reach (River Miles)	Slope (ft/1000 ft)
1	Harpeth River	91.2	620 - 610	91.2 - 86.8	0.4
			610 - 605	86.8 - 86.2	1.6
2	Harpeth River	96.5	640 - 630	96.5 - 93.6	0.7
			630 - 620	93.6 - 91.5	0.9
3	West Harpeth River	19.4	735 - 730	19.4 - 18.9	1.9
			730 - 720	18.9 - 18.4	3.8
			720 - 710	18.4 - 17.9	3.8
			710 - 700	17.9 - 16.8	1.7
			700 - 690	16.8 - 16.1	2.7
			690 - 680	16.1 - 15.3	2.4
			680 - 670	15.3 - 14.0	1.5



STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Water Pollution Control  
6th Floor, L & C Annex  
401 Church Street  
Nashville, Tennessee 37243-1534

December 14, 1998

Mr. Bo Butler  
Smith Seckman Reid, Inc.  
3319 West End Avenue, Suite 700  
Nashville, Tennessee 37203

Re: Planning Limits Request  
City of Franklin  
Williamson County

Dear Mr. Butler:

Your request for planning limits was received at the Division of Water Pollution Control, Nashville Environmental Assistance Center. You ask that we consider three alternative stream discharge sites for projected flows of 4.52 to 8.25 million gallons per day from the I-65 South Corridor Drainage Basin. Those locations are: Discharge Point #1 at Harpeth River Mile 91.2; Discharge Point #2 at Harpeth River Mile 96.5; and Discharge Point #3 at West Harpeth River Mile 19.4. We have reviewed all three sites.

As part of the site review process, we examined our 303(d) List to determine how it might bear on this decision. This is a compilation of waters in Tennessee that, because they violate one or more water quality standards, require additional pollution controls to fully support their designated uses. These streams and lakes are priorities for water quality improvement, which may mean that existing discharges are not allowed to expand or that new discharges may not be added until the sources of pollution have been controlled.

The Harpeth River, in the reach containing Discharge Points #1 and #2, is listed on Tennessee's 303(d) List as "Partially Supporting," with causes including organic enrichment, habitat alteration, siltation and heavy metals. Adding more treated wastewater, even highly treated wastewater, to this stream reach would aggravate at least part of this problem by unavoidably increasing the organic load. Therefore, we are not presently able to approve planning limits for either of these alternatives.

EXHIBIT

C

Tennessee's Antidegradation Policy (part of our Water Quality Standards) requires that we fully protect the existing uses of all surface waters. The West Harpeth is a smaller stream with little flow during some parts of the year. Considering the stream size in relation to the proposed discharge volume, we believe that West Harpeth water quality would likely decline--even with a high degree of treatment--should this discharge be approved. For this reason, we cannot issue planning limits for the proposed Discharge Point #3.

Looking at the flow figures in your request, we found the projected average and maximum flows to be somewhat higher than we might expect, especially when compared to the flows reported by the present Franklin wastewater treatment plant. Perhaps, if you projected lower figures, other treatment and disposal options may become more feasible. You might review reuse and disposal options other than stream discharge, including technologies such as spray irrigation systems or smaller decentralized treatment systems using drip irrigation technology. You might also consider transporting treated effluent to a more suitable discharge location. I appreciate your mention of innovative technology, and I have asked Mike Thornton in our Nashville EAC to contact you to initiate discussions in this direction.

If you have any questions, or if I can be of assistance, please contact me at 615/532-0625.

Sincerely,



Paul E. Davis, P.E.  
Director  
Division of Water Pollution Control

enclosures: State of Tennessee Water Quality Standards  
Final 1998 303(d) List

cc: Honorable Jerry W. Sharber, Mayor, City of Franklin  
Mr. Eddy Woodard, Water/Sewer Director, City of Franklin  
TDEC, Environmental Assistance Center - Nashville

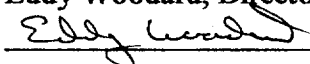
Eddy Woodard  
Director

**CITY OF FRANKLIN**  
**WATER & WASTEWATER DEPT.**

P.O. Box 487  
Franklin, TN 37065-0487

**MEMORANDUM**

**TO:** Tom Miller, Alderman  
Clyde Barnhill, Alderman  
Steve Smith, Alderman

**FROM:** Eddy Woodard, Director Water and Sewer  


**DATE:** January 17, 2000

**RE:** Priority of Sewer Projects

**2000 Sewer Project Priorities**

Listed below are projects that need to be addressed in the near future. The listed projects are in no order of priority, but are simply the sewer projects that have been identified as requiring attention. Some of the listed projects are needed to require relief of the constraints of the collection systems. Others are for the optimum operation of the system in the future. The time frame for these projects is immediate. All of these projects will require several months of lead-time before actual construction can begin. Therefore, the sooner we take action on the priority of these projects, the sooner we can address the future needs for expansion of the system.  
(Collection & Treatment)

The following projects have been discussed at prior meetings, but have not been prioritized. They are as follows:

➤ **Phase II Spencer Creek Interceptor Sewer** - This project entails the installation of 4,200 feet of 36" gravity main from the existing Spencer Creek Pump Station located at the intersection of Edwin Rice Road and Franklin Road at a cost of \$792,100. This gravity line extends from this point to a new pumpstation located at the main treatment plant. This project will allow for the abandonment of the existing Spencer Creek Pump Station. This project has been design by the engineering firm of Smith, Seckman Reid and is ready to go to bid. However, this project has to be done in conjunction with the new pump station at the wastewater

**EXHIBIT**

D

treatment plant because this gravity line is reliant on the new pump station for the delivery of sewage to the treatment plant.

- **New Main Pump Station** – This project will replace the original main pump station at the wastewater treatment plant. As you are aware, this pump station was constructed in conjunction with the main plant. The engineered cost estimate for this project without the modifications for the elimination of the Harpeth Meadows Pump Station is \$4,345,890.25. This design and price will only be for the sewage from the Spencer Creek Drainage Basin. Five major factors that dictated the replacement of this lift station. They are as follows:

1. Lack of maintenance resulting in high operational cost.
2. No odor control of provisions for odor control system.
3. Replacement enables the elimination of two other pump stations (Harpeth Meadows & Spencer Creek)
4. Deeper wet well allows access of sewage from different areas at a lower elevation.
5. Eliminates modifications of the “Spencer Creek Pump Station estimated at \$1,500,000.

- **Elimination of Harpeth Meadows Pump Station** – This project would eliminate the largest satellite pump station. This pump station was last updated in 1991 and has begun experiencing costly major repairs. The location of this pump station in the downtown area adds to the reasons for elimination. This project requires the installation of approximately 5,000 feet of 64” gravity sewer from the present pump station to the newly constructed pump station at the wastewater treatment plant. The estimate cost for this project is \$1,750,000. If it is decided that the Harpeth Meadows Pump Station is to remain in its present location, it will have to be upgraded and upsized when the Watson Branch Interceptor Sewer Project is begun. Also, if this pump station is not eliminated, the new pump station at the main wastewater treatment plant can be designed on a larger scale. Therefore, the future of this pump station must be decided before the final design of the proposed new pump station at the wastewater treatment plant is completed. This design for this project has not been award as of this date. Steve Lane and Bo Butler of Smith, Seckman Reid have done some limited, preliminary work to determine the possibilities of the elimination of this pump station.

- **Watson Branch Interceptor Sewer** – This project will begin at the terminus of the Harpeth River Interceptor Sewer located @ Ewingville Drive. This project will extent to the east to a point west of I-65 South where the present Watson Branch Sewer crosses I-65. The portion of the Watson Branch Sewer east of the interstate has either been upsized recently or was installed to adequately accommodate the capacity of the remainder of the basin. This project will entail the replacement or parrelling of approximately 13,000 feet of line at an estimated cost of \$2,700,000 this project has been studied by the engineering firm of Smith, Seckman Reid, but the design of the replacement and upsizing has not been awarded. The design of this interceptor could also be contingent upon the ultimate route of the sewage from the I-65 South Corridor. If it is decided that the sewage from this area is to be routed through the

Watson Branch Interceptor, provisions in sizing will need to be incorporated at the time of design.

- **Harpeth River Interceptor** – This project will follow along the route of the Harpeth River to the southeast to the intersection of the river and I-65 South @ South Carothers Road. This project will commence in the general vicinity of the intersection of Watson Branch with the Harpeth River. (@Carriage Park Drive and Lewisburg Pike) The installation of this line probably will require the construction of a new pump station or inverted siphon to cross the Harpeth River. However, the installation of this line will allow the possible elimination of four existing pump stations. This interceptor would also allow for sewage from the I-65 South Corridor to come to the main treatment plant pump station by gravity. Neither the study nor design of this project has been awarded. Consideration for the discharge from this area will require special consideration. The design of the present treatment plant did not incorporate this area into the design capacity of the existing treatment plant. The estimate length of this project is 16,000 feet at an estimated cost of approximately \$3,375,000.
- **Western Corridor** – This project would be for the area, which lies to the west of Franklin @ 96 west area. This area has not been studied for the possibilities of sanitary sewers. However, there are two possibilities for providing sewer service to the area. Sewage from this area could be sent to the present treatment plant through the use of additional pump stations or exploring the possibilities of a discharge to the West Harpeth River or zero discharge plant. As stated before, this area has not been officially studied for sewer requirements, but should be studied upon the establishment of the Urban Growth Boundary. The study for this area should be approximately \$28,500.
- **Renovation of the 5.5 mgd portion of the Wastewater Treatment Plant** – Request for Qualifications of Engineering Service for the renovation of the wastewater treatment plant were received on January 18, 2000. The ten firms submitting qualifications will be shortlisted before February 3, 2000. At this time, the three shortlisted firms will be asked to submit Request for Proposals. The RFP's will be submitted on February 24, 2000 for consideration by the city. The contract for the selected firm will be before the BOMA at their meeting on March 14, 2000. An amount of \$75,000 for engineering services has been allocated in this year's Sewer and Water Fund. This amount of money should be adequate for the cost of engineering services incurred this fiscal year. However, funds for the renovation and additional engineering services will be require in the FY 2000 – 2001 Sewer and Water Fund. Timing of this project is critical because the present flow to the plant could encroach on the 6.5-mgd capacity of the plant before the renovation of the 5.5-mgd is completed. As was stated at our workshop on January 17, 2000, funding for this project will possibly have to come from a bond issue. Any of the other projects above can also be incorporate in the bond resolution.

As I have previous stated, these projects are in no particular order, but I feel that to use the design, permitted capacity of the plant we should address the restrictions in the existing collection system before we address additional service areas. However, in addressing the identified restrictions, we can also make provisions for expansion of our present service area.

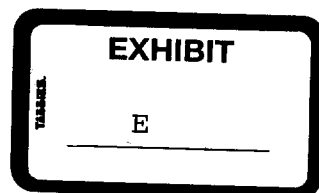
**CITY OF FRANKLIN**

**I-65 SOUTH CORRIDOR  
SEWER SYSTEM ALTERNATIVES**

**January, 2000**

**Prepared by:**

**Smith Seckman Reid, Inc.  
3319 West End Avenue  
Suite 700  
Nashville, TN 37203  
(615) 383-1113**



# **I-65 SOUTH CORRIDOR SEWER SYSTEM ALTERNATIVES**

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## **INTRODUCTION**

The I-65 South Corridor Wastewater System Study began in 1998. The Study was to evaluate various options for providing sewer service to an area roughly bordered as follows: The Harpeth River to the north, Peytonsville Road to the east, Columbia Pike to the west, and State Route 840 to the south.

The area includes approximately 6,200 acres within the Five-Mile Creek drainage basin, as well as an additional 24,000 acres that are currently proposed in the Franklin urban growth boundary limits. The area is characterized by low and medium density residential, agricultural, and a small area of commercial surrounding the Goose Creek/I-65 Interchange. Zoning is primarily for suburban estate, suburban and rural development.

There is currently no area-wide sewage collection and/or treatment system in the study area. A small area surrounding the Goose Creek interchange is currently served by the 30,000 GPD Goose Creek Inn Wastewater Treatment Plant. The Goose Creek Inn Wastewater Treatment Plant is a privately owned wastewater treatment facility.

The I-65 South corridor drainage basin was evaluated using anticipated densities, land use planning information, and projected flows for a 15-year study period. An average wastewater flow of approximately 2.5 million gallons per day (MGD) is projected for this area during the 15-year study period.

## **WASTEWATER SYSTEM ALTERNATIVES**

As previously stated, there is currently no area-wide sewage collection and/or treatment system in the I-65 South Study area. Two options are being considered for providing sewer system in this Study area. The first option involves the construction of a wastewater treatment plant to be built in an area near the confluence of the Harpeth River and Five-Mile Creek. The plant will be a zero discharge wastewater plant and will utilize land for the disposal of the treated effluent. The initial availability of sewer customers and the number of developments (new or proposed) to provide initial funding associated with the construction of a second wastewater treatment plant for the City of Franklin will be one of the controlling issues for this option. Inasmuch as the State of Tennessee will not allow an additional wastewater treatment plant discharges into the Harpeth River, this treatment plant would utilize land for the ultimate disposal of treated wastewater. The siting of a new wastewater treatment plant and obtaining the required land for the disposal of the treated wastewater will be sensitive and time-consuming issues, considering the current type of development in the area. This process could take as much as two years to complete.

During the design and construction of the treatment plant, sewage collection lines could also be constructed to convey the wastewater to the treatment plant. A gravity sewer line, extended south along Five-Mile Creek to the Goose Creek/I-65 interchange, would be required. As demand for sewer service grows, a sewer line could be extended to the southeast along the Harpeth River from the site treatment plant.

Should the City of Franklin decide to pursue this alternative, it is anticipated that the project would take between 3 and 5 years for planning, design, property acquisition and construction. The schedule could be influenced by the demand for sewer service in the Study area and funding available for this project.

A second alternative available to the City of Franklin for the I-65 Study area would involve the construction of facilities to convey the wastewater in the I-65 Study area to the existing Franklin Wastewater Treatment Plant. This alternative would include the construction of a permanent sewage pumping station in the vicinity of the Harpeth River and Watson Branch, and the extension of gravity interceptor sewers into the I-65 South Study area for collection and conveyance of the wastewater. The pump station would discharge into the Harpeth River interceptor which would transfer the wastewater to the existing Franklin Wastewater Treatment Plant. The gravity interceptor sewer would be constructed from the new pump station site along the Harpeth River to the confluence with Five-Mile Creek.

A gravity sewer line would be extended south along Five-Mile Creek to the south side of the Goose Creek by-pass. Additional sewage collector lines could be constructed in the Five-Mile Creek drainage basin and connect to the Five-Mile Creek interceptor in order to provide gravity sewer service for the entire drainage basin. As a demand for sewer service grows, the interceptor sewer could be extended along the Harpeth River in a southeasterly direction to provide sewer service for the eastern portion of the I-65 South Study area.

Should the City of Franklin decide to pursue this alternative, it is anticipated that the project would take between 2 and 4 years for planning, design, easement acquisition and construction. The final schedule and timetable for this project could be influenced by the demand for sewer service in the Study area and the funding available for this project.

If the demand for sewer service in the I-65 South Study area required this alternative to be phased in order to expedite sewer service availability, several options are available in order to expedite sewer service. Those options are as follows:

An option for providing sewer service to the Goose Creek interchange area, would involve the construction of a temporary pump station near Peytonsville Road and Five-Mile Creek. A gravity sewer line would be constructed along Five-Mile Creek south to the Goose Creek by-pass. Sewage collection lines could be constructed and connected to the Five-Mile Creek interceptor sewer in order to provide sewer service for the interchange area at Goose Creek by-pass/I-65. The wastewater from the temporary pump station at Peytonsville Road could be pumped to the existing sewer service at Sullivan Farms through a force main. This project could

be completed within 9-12 months assuming the City of Franklin decides to pursue this option and adequate funding is available for the project.

Another phase or option for this alternative could involve the construction of a temporary pump station at the confluence of Five-Mile Creek and the Harpeth River. A gravity sewer line could be constructed south along Five-Mile Creek to the Goose Creek interchange area. Sewage collector lines could be constructed, as required, to provide sewer service to the remaining portions of the Five-Mile Creek drainage basin as development necessitated. The temporary pump station would pump the wastewater to the existing sewer system in Sullivan Farms. This pump station would be operated until such time as the Harpeth River interceptor sewer could be extended to eliminate this pump station. This option would allow sewer service for the 6,200 acres located within the Five-Mile Creek drainage basin.

Should the City of Franklin decide to pursue this approach for providing sewer to the Five-Mile Creek drainage basin, it is anticipated that the project will take between 12 and 18 months for planning, design, easement acquisition and construction. The schedule could be influenced by a demand for sewer service in the Five-Mile Creek drainage basin and the funding available for the project.

Exhibits 1 and 2 illustrate the various phases for constructing facilities to convey the wastewater from the I-65 South Study area to a point of connection with Franklin's existing wastewater collection and treatment system. The exhibits show general locations for the pump stations as discussed, and approximate routings for the interceptor and collector sewer lines. The final location for the pump stations and the sewer lines will be determined once all of the field work is done and site conditions have been verified.

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